2004 CONSUMER CONFIDENCE REPORT

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Marine Corps Base Camp Pendleton

~ 2004 Consumer Confidence Report ~

This report provides information on the quality of the water provided to residents and personnel who live and work aboard Camp Pendleton. Included are details about where your water comes from, what it contains, and how it compares to established drinking water standards.

Este informe contiene informacion muy importante sobre su agua potable. Traduzcalo o hable con alguien que lo entienda bien.

Camp Pendleton's Drinking Water

With the exception of San Mateo Point housing, which receives water from the South Coast Water District (SCWD), Camp Pendleton provides water service to all areas of the Base through one of the following two water systems. Both of these water systems obtain water from underground aquifers or basins located on Camp Pendleton, and the water in both systems is disinfected prior to distribution to Base water consumers. (Note: San Mateo Point housing residents should receive a Consumer Confidence Report from the SCWD.)

Northern Water System

- Service Area: San Onofre Housing and Mobile Home areas, San Onofre Recreation Beach, and the 52-64 Areas of Camp Pendleton.
- Water Source: groundwater from wells located in the San Onofre and San Mateo River basins.

Southern Water System

- Service Area: all areas not serviced by the Base's northern water system or by the SCWD.
- Water Source: groundwater from wells located in the Las Flores and Santa Margarita River basins.
- Presently, water from some wells in the Santa Margarita River groundwater basin is processed through an iron and manganese removal facility to reduce the concentration of these naturally occurring substances from the source water. A second iron and manganese removal facility is currently being built to service the remaining wells in the Santa Margarita River Basin, which also tend to contain high concentrations of naturally occurring iron and manganese.

For questions or additional information regarding this report, please contact the Facilities Maintenance Department, Water Superintendent at (760) 725-0602.

Water Quality Monitoring

Camp Pendleton conducts water quality monitoring in both water systems to comply with California Department of Health Services (California DHS) requirements. In addition to monitoring for contaminants with established regulatory standards, the Base also monitors for *unregulated contaminants*, which helps the United States Environmental Protection Agency (USEPA) and the California DHS determine where certain contaminants occur and whether such contaminants need to be regulated.

Last year, Camp Pendleton conducted over 17,000 water quality tests to evaluate compliance with regulatory requirements. Out of the 200 water quality parameters examined, 29 were detected at or above reportable levels and only seven registered, on occasion, over a drinking water quality standard or notification level as follows:

Northern Water System

- 22 samples exceeded the action level for copper; these are attributed to the corrosion of copper pipes in buildings and residences.

Southern Water System

- 54 samples exceeded the secondary drinking water standard for color, iron, manganese, specific conductance and turbidity. These are attributed to naturally occurring characteristics of the source water as well as the accumulation of deposits in the water mains. They are not associated with any known health risks, although they may impact the aesthetic quality or palatability of the water.
- Nine samples from two wells exceeded the notification level for 1,2,3-trichloropropane. The Department of the Navy is currently investigating the potential source of this unregulated contaminant.

Drinking Water Source Assessment

The California DHS conducted an assessment of the Base's drinking water sources during July 2002. The assessment determined that wells in both water systems are most vulnerable to activities commonly associated with *military installations*, however no contaminants related to this assessment category have been detected in the water supply. The assessment also determined that some wells in Camp Pendleton's southern water system are most vulnerable to activities commonly associated with:

- *Chemical/petroleum processing/storage* and *historic waste dumps/landfills* based on contaminant detections in the groundwater source prior to July 2002.
- *Airport maintenance/fueling areas* and *landfills/ dumps*, however no contaminants related to these assessment categories have been detected in the groundwater source.

You may request a summary of this assessment by contacting the AC/S Environmental Security Drinking Water Branch at 725-9741. A copy of the complete assessment is also available for viewing at: AC/S Environmental Security, Building 22165, Marine Corps Base, Camp Pendleton, CA 922055-5008.

Compliance Standing

During September 2004, Camp Pendleton resolved the following regulatory enforcement actions related to its drinking water operations:

- *Lead and Copper Rule* citation: issued by the California DHS in 2003 for protocol violations that occurred during 1995 and 1999.
- *Unregulated Contaminant Monitoring Rule* administrative order: issued by the USEPA in March 2004 for failing to monitor and report as required by the rule. Subsequent sampling showed that Camp Pendleton did not have detectable levels of contaminants associated with this particular rule in the drinking water.

Water System Advisories

As indicated by the tables provided in the center of this report, sampling results in both water systems occasionally exceed an established drinking water quality standard. While this does not present a health concern to the general public, the following water system advisories currently apply:

Northern Water System: In Spring 2005, Camp Pendleton mailed a notice to residents served by the Base's northern water system regarding the potential presence of ***copper*** in the drinking water. This notice informed residents of initiatives to address this issue and measures residents can take to improve water palatability. It also provided the following potential health effects information:

> *Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.*

Copies of the complete advisory are available at the Base Housing Office, Bldg. 1138.

Southern Water System: Camp Pendleton's Housing Office provides a standing notice to all new residents served by the Base's southern water system regarding the possible occurrence of ***manganese*** in the drinking water. Manganese is a common mineral that is often present in groundwater due to naturally- occurring geologic formations or deposits. Raw water pumped from wells in the Santa Margarita River basin generally contains manganese at levels that exceed standards established to promote the aesthetic quality of the water. Copies of the complete advisory are available at the Base Housing Office, Bldg. 1138.

Water Quality Investments

During 2004, Camp Pendleton spent over $4 million in routine operations and maintenance and invested over $13 million in capital improvements in the two water systems. General improvements such as replacement of water storage tanks, wells, and water lines represent part of an ongoing effort to provide the best possible quality of water to Base residents and personnel. Other significant initiatives include:

Northern Water System: Camp Pendleton commissioned a study to determine an appropriate treatment technique to control copper corrosion in the Base's northern water system. Camp Pendleton will coordinate with the California DHS upon conclusion of this study during 2005 to select and

implement an appropriate treatment technique in order to resolve this water quality concern.

Southern Water System:

- Camp Pendleton began construction of a second iron and manganese removal facility to treat water pumped from wells in the Santa Margarita River basin that is not currently processed through the existing treatment facility. This facility will become operational during 2005, and upgrades to the existing iron and manganese removal facility are also planned for 2005. These efforts should greatly improve the aesthetic quality of the water delivered in the Base's southern water system.
- Camp Pendleton programmed funds to replace one well in the Santa Margarita River basin that consistently registers detectable levels of 1,2,3-trichloropropane. Until this well is replaced, Camp Pendleton plans to access this well only to augment peak water demands. When used in this manner, water from this well is diluted with water from other wells, which reduces the concentration of this unregulated contaminant below reportable levels.

Perchlorate Sampling

Perchlorate contamination of water supplies has generated significant attention nationwide due to the potential health effects of this unregulated contaminant. (Perchlorate is an inorganic chemical that is used in the manufacture of rocket fuels and propellants, explosives and fireworks, road flares, matches, dyes, vehicle airbags, rubber, paints, household bleach, and certain imported fertilizers.) Perchlorate has never been detected in any Camp Pendleton drinking water wells since quarterly sampling began in January 2003. Although activities normally associated with perchlorate contamination are not typical of those that occur on Base, Camp Pendleton will continue to sample for perchlorate as a protective measure.

Terms Used in This Report

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

Primary Drinking Water Standard or PDWS: MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Secondary Drinking Water Standards or SDWS: MCLs for constituents in drinking water that may adversely affect the taste, odor or appearance of the water.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Notification levels: Health-based advisory levels established by the California DHS for chemicals in drinking water that lack MCLs. When chemicals are found at concentrations greater than their notification levels, certain regulatory requirements and recommendations apply.

2004 Water Quality Monitoring Results

Source Water Sampling Results

Primary Drinking Water Standards - Inorganics (Health Related Standards)									
Parameter	Units	MCL (AL)	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Arsenic	ppb	50	0.004	2	ND	ND-3	ND	ND-3	Erosion of natural deposits
Barium	ppm	1	2	0.1	ND	ND	ND	ND-0.160	Erosion of natural deposits
Copper	ppm	(1.3)	0.17	0.05	ND	ND	ND	ND-0.069	Erosoin of natural deposits
Fluoride	ppm	2	1	0.1	0.3	0.2-0.4	0.5	0.3-0.9	Erosion of natural deposits
Lead	ppb	(15)	2	5	ND	ND	ND	ND-6	Erosoin of natural deposits
Nitrate as N03	ppm	45	45	2	9.9	ND-17.2	ND	ND-8.7	Fertilizer runoff and leaching;sewage;natural erosion
Total Trihalomethanes	ppb	80	N/A	0.5	ND	ND-1.4	ND	ND-2.8	By-Product of well maintenance/disinfection
Primary Drinking Water Standards - Radionuclides (Health Related Standards)									
Parameter	Units	MCL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Combined Radium 226 + 228	pCi/L	5	N/A	N/A	1.21	ND-2.38	1.81	ND-4.14	Erosion of natural deposits
Strontium 90	pCi/L	8	N/A	2	ND	ND-5.15	ND	ND-4.95	Erosion of natural deposits
Gross Alpha	pCi/L	15	N/A	3	3.25	ND-10.3	4.09	ND -17.4 **(a)**	Erosion of natural deposits
Uranium	pCi/L	20	0.43	2	3.20	ND-5.67	4.65	ND-11.9	Erosion of natural deposits
Secondary Drinking Water Standards and other Parameters (Aesthetic Standards)									
Parameter	Units	SMCL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Color	Color Units	15	N/A	N/A	ND	ND-5	11	ND-**107 (b)**	Naturally occurring organic material
Specific Conductance	µmhos/cm	1600	N/A	N/A	914	744-1150	1283	1030-**1660 (b)**	Substances that form ions in water
Hardness	ppm	N/A	N/A	N/A	276	226-373	370	263-472	Erosion of natural deposits
Iron	ppb	300	N/A	100	ND	ND	150	ND-**1180 (b)**	Leaching from natural deposits
Manganese	ppb	50	N/A	20	ND	ND	**337 (b)**	ND-**2830 (b)**	Leaching from natural deposits
Sodium	ppm	N/A	N/A	N/A	63	48-86	112	84-163	Erosion of natural deposits
Sulfate	ppm	500	N/A	0.5	141	94-206	173	57-267	Runoff or leaching from natural deposits
Turbidity	NTU	5	N/A	N/A	ND	ND-0.7	1.1	ND-**12.3 (b)**	High concentrations disolved minerals.
Unregulated Chemicals (State UCMR)									
Parameter	Units	AL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Boron	ppb	1000	N/A	100	170	129-262	186	124-264	Runoff/leaching from natural deposits; industrial wastes
Hexavalent Chromium	ppb	N/A	N/A	1	ND	ND	ND	ND-2.7	Industrial waste discharge
tert-Butyl Alcohol	ppb	12	N/A	2	ND	ND-4.5	ND	ND	MTBE breakdown product; used as gasoline additive
1,2,3-Trichloropropane	ppt	5	N/A	5	ND	ND	ND	ND-**44 (c)**	Industrial waste discharge and pesticide uses
Vanadium	ppb	50	N/A	3	6	5-8	10	4-15	Naturally-occurring; industrial waste discharge

Distribution System Sampling Results

Microbiological (Health Related Standards)									
Parameter	Units	MCL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Detects	Violations	Detects	Violations	
Fecal Coliform or E.coli.	N/A	**(d)**		N/A	0	0	0	0	Human and animal fecal waste
Total Coliform Bacteria	N/A	**(e)**		N/A	0	0	2 **(f)**	0	Naturally present in the environment
Lead and Copper (Health Related Standards)									
Parameter	Units	AL	PHG (MCLG)	DLR	Northern System (g)		Southern System (h)		Typical Source
					90th %ile (i)	sites over AL	90th %ile (i)	sites over AL	
Copper	ppm	1.3	0.17	0.05	**1.480**	15	1.06	1	Corrosion of household plumbing system
Lead	ppb	15	2	5	ND	0	ND	0	Corrosion of household plumbing system
Secondary Drinking Water Standards (Aesthetic Standards)									
Parameter	Units	SMCL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Color	Color Units	15	N/A	1	N/A	N/A	5	ND-**59 (j)**	Naturally occurring organic material
Iron	ppb	300	N/A	100	N/A	N/A	27	ND-**1880 (j)**	Leaching from natural deposits, industrial wastes
Manganese	ppb	50	N/A	20	N/A	N/A	9	ND-**268 (j)**	Leaching from natural deposits
Turbidity	NTU	5	N/A	0.1	N/A	N/A	ND	ND-**6.7 (j)**	High concentrations of disolved minerals.
Disinfection By-Products and Disinfectant Residuals (Federal Rule)									
Parameter	Units	MCL	PHG (MCLG)	DLR	Northern System		Southern System		Typical Source
					Average	Range	Average	Range	
Haloacetic Acids	ppb	60	N/A	N/A	8.4	ND-14.8	10.7	2.0-21.0	By-Product of drinking water chlorination
Total Chlorine Residuals	ppm	4	4	N/A	0.93	0.77-1.18	0.88	0.91-1.02	Drinking water disinfection
Total Organic Carbon	ppm	N/A	N/A	0.3	ND	ND-1.1	1.6	ND-2.6	Natural and manmade sources
Total Trihalomethanes	ppb	80	N/A	0.5	11.6	0.6-48.4	40.5	ND-157.0	By-Product of drinking water chlorination

Footnotes:

(a) Although three samples from one well exceeded the MCL for gross alpha, all Camp Pendleton wells complied with the regulatory evaluation protocol for this contaminant. The MCL for gross alpha is based on the adjusted test values, where interference from other alpha emitting particles like radon and uranium are deducted from the results.

(b) Wells in the southern system have higher concentrations of naturally occurring minerals like iron and manganese, which also account for the higher values for color, specific conductance, and turbidity. Presently, water from some wells in the Santa Margarita River Basin is processed through and iron and manganese removal facility to reduce the concentration of these naturally occurring substances from the source water; a second iron and manganese removal facility is currently being built to service the remaining wells in the Santa Margarita River Basin, which also tend to contain high concentrations of naturally occurring iron and manganese.

(c) 1,2,3-Trichloropropane was detected in two Base southern system wells. Camp Pendleton plans to access one well with recurring 1,2,3-TCP detections only to augment peak water demands. When used in this manner, water from this well is diluted with water from other wells, which reduces the concentration of this unregulated contaminant below levels that require reporting.

(d) MCL for Fecal coliform of E. coli: a routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or E. coli.

(e) MCL for total coliform in the southern system is no more than 5% of monthly samples are positive. MCL for total coliform in the northern system is no more than one positive monthly sample.

(f) The system was in compliance in 2004. Only two distribution sample were positive for total coliform bacteria in 2004, one in May and one in October. The distribution system at those locations were immediately taken out of service, super chlorinated, flushed, and resampled. The resample results were negative and the distribution system was returned to service.

(g) The northern system was sampled twice during 2004. Sampling during May resulted in a 90th percentile for copper of 1.390 with seven sites exceeded the action level. Lead had a ND for the 90th percentile, with no sites exceeded the action level.

(h) The southern system was last sampled in September 2002 and was found to be in compliance. The southern system is now in a 3-year monitoring program and will be sampled during 2005.

(i) Lead and copper compliance is based on the 90th percentile of the test result being below the AL. Samples were taken from customer taps to reflect the influence of household plumbing.

(j) 29 sites in the southern water system are sampled on a monthly basis for iron, manganese color or turbidity. If the MCL for any of these parameters is exceeded, the site is immediately flushed and resampled. One distribution site sample result exceeded the MCL for turbidity and was flushed and resampled, with a retest result of 0.7 NTU.

Abbreviations:

MCL = Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
AL = Action Level for Public Notification
MRDL = Maximum Residual Disinfection Level
PHG = Public Health Goal
MCLG = Maximum Contaminant Level Goal
DLR = Detection Level for the Purposes of Reporting
ND = None Detected
NA = Not Applicable
ppm = parts per million = milligrams per liter (mg/L)
ppb = parts per billion = micrograms per liter (µg/L)
ppt = parts per trillion = nanograms per liter (ng/L)
NTU = Nephelometric Turbidity Units
pCi/L = picoCuries per liter
µmho/cm = micromho per centimeter

Educational Information

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land, or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.

Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- *Inorganic contaminants*, such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- *Radioactive contaminants*, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA and the California DHS prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. California DHS regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. USEPA / Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

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Help Conserve Your Water Resources

Camp Pendleton relies on perishable groundwater resources to provide water for Base residents and personnel. Despite the heavy precipitation in 2004 and corresponding improvement in our water table, our water resources are finite in supply and vulnerable to wasteful water-use activities. In order to help conserve water, specific watering times for landscapes and lawns are established in Base Order 1130.2J. Residents are reminded that watering of landscaped areas must occur during evening and early morning hours (after 1700 and before 0900) and shall not exceed 20 minutes, three times per week. For more information about water conservation call the Office of Water Resources at 763-1969.

Help Protect Your Water Source

Because Camp Pendleton's groundwater basins are located within areas where we live and work, our activities can contribute to contamination of our groundwater supplies through the Base's storm drain system. Below are some simple ways

residents can help to keep the environment clean and protect Camp Pendleton's valuable drinking water resources.

- Check your car for leaks.
- Wash your car on the grass or take your car to the carwash instead of washing it in the driveway.
- Pick up after your pet.
- Use lawn and garden fertilizers sparingly.
- Sweep driveways and sidewalks instead of hosing them off.
- Never dump anything down storm drains.

Please be aware that Camp Pendleton's storm drains are *not* connected to any of the Base's wastewater treatment plants. All water runoff from storm events flows via storm drains directly to our streams, rivers, lakes, and ultimately the Pacific Ocean, picking up surface contaminants along the way. These contaminants can harm aquatic life and can impact the beneficial uses of our surface water resources; they can also percolate through the ground and impair the quality of our groundwater resources. For more information about storm water management, or to report illegal discharges into the storm drain system, call the AC/S Environmental Security Storm Water Branch at (760) 725-9760.

Disposal of Household Hazardous Waste

The Family Housing Office provides a free program for disposal of household hazardous waste. This program provides Base residents with a convenient, safe and environmentally friendly way to dispose of household hazardous waste. Never discard unwanted quantities of hazardous waste into the trash as this may injure sanitation workers and contaminate the environment. Similarly, never pour household hazardous waste liquids down your sink drain, as this also provides a convenient way for such wastes to enter the environment. If you have questions or need information on household hazardous waste drop off points, call the Family Housing Self Help Office at (760) 763-4402.

Community Council Meetings

Camp Pendleton hosts quarterly Community Council meetings and welcomes public participation at these events. You can address drinking water quality concerns at these venues in person or alternatively through your local housing area representative. For information about meeting locations, dates and times, contact the Base Housing Customer Relations Manager at (760) 725-0891

This report is available online at: http://www.pendleton.usmc.mil/base/environmental

For questions or additional information regarding this report, please contact the Facilities Maintenance Department, Water Superintendent at (760) 725-0602 or the AC/S Environmental Security Drinking Water Branch at (760) 725-9741.

Additional Water Quality Information Sources:

California Department of Health Services Division of Drinking Water and Environmental Management	www.dhs.ca.gov/ps/ddwem (213) 580-5723
California Office of Environmental Health Hazard Assessment Water Toxicology Unit	www.oehha.ca.gov/water.html (510) 622-3168
U.S Environmental Protection Agency Office of Groundwater and Drinking Water USEPA Safe Drinking Water Hotline	www.EPA.gov/safewater/ (202) 564-3750 1-800-426-4791